

**REMARKS/ARGUMENTS**

Upon entry of this amendment, which amends claims 1, 12, 14, and 25, cancels claims 18, and adds claims 29-74, claims 1-29 remain pending, and claims 29-74 are newly presented for examination. Support for all amended and new claims can be found in the specification, and no new matter has been added.

Claims 1 and 13-14 were rejected under 35 U.S.C. 102(e) as being anticipated by Klimovitch, US Patent App. Pub. 2002/0111142 ("Klimovitch"). Claims 25-26 and 28 were rejected under 35 U.S.C. 102(b) as being anticipated by Moose, US Patent App. Pub. 2002/0065047 ("Moose"). Claim 12 was rejected under 35 U.S.C. 103(a) as being obvious over Klimovitch in view of Moose. Claim 27 was rejected under 35 U.S.C. 103(a) as being obvious over Moose in view of Klimovitch.

Claims 2-11 and 15-24 were objected to as being dependent on a rejected base claim, but were found to be allowable if rewritten in independent form.

Reconsideration in view of the foregoing amendments and following remarks is respectfully requested.

**Amendments to the Specification**

The specification has been amended to update cross-references found therein. No new matter has been added.

**Rejection of Claims 1 and 13-14 under 35 U.S.C. 102(e)**

Claims 1 and 13-14 were rejected under 35 U.S.C. 102(e) as being anticipated by Klimovitch. Applicants respectfully traverse.

Claim 1 (which has been amended to correct a typographical error discovered therein) recites a method for determining channel estimates at a receiver for a wireless communication system that includes, among other features, "adaptively truncating the estimated channel response in the time domain ...." Independent claim 14 has been amended to recite a similar act.

"Adaptively truncating" as used in claims 1 and 14 refers to using information obtained from the received signal in deciding which portion of the estimated channel response estimate to truncate. For example, as described at ¶ [0061] of the present specification, the impulse response can be "advantageously cut off (truncated) in time at a point that optimizes a tradeoff between channel power and noise." As described, this point is determined from the data.

Klimovitch fails to teach or suggest *adaptive* truncation. At ¶ [0013], Klimovitch states that the channel response in the time domain, represented by a "first set of coefficients" can be truncated "by selecting certain of the first set of coefficients to generate a second set of coefficients." But no further teaching as to *how* "certain of the first set of coefficients" are selected could be found in Klimovitch. In particular, Klimovitch does not teach or suggest any adaptive criterion for selecting the coefficients.

For at least this reason, claims 1 and 14 are patentable over Klimovitch. Claim 13 depends from claim 1 and derives patentability therefrom. Accordingly, withdrawal of the rejection of claims 1, 13 and 14 under 35 U.S.C. §102(e) is respectfully requested.

Rejection of Claims 25-26 and 28 under 35 U.S.C. 102(b)

Claims 25-26 and 28 were rejected under 35 U.S.C. 102(b) as being anticipated by Moose. Without conceding the merits of the rejection as applied to the previously presented claims, Applicants respectfully submit that the amended claims overcome this rejection.

Claim 25, as amended, recites a method of tracking channel variations during receipt of a packet that includes, among other features, "identifying a received symbol in the packet, wherein the received symbol corresponds to an input symbol value that is not part of a training sequence" and using that received symbol value to derive a "per-symbol channel estimate" that is used to update the initial channel estimate. As described in the specification (see, e.g., ¶ [0100]), using per-symbol channel estimates can "improve the robustness to channel variations *during* a packet."

Moose teaches only estimating a channel using symbols in a training sequence. For example, the "sync sequence" referred to in ¶ [0066] of Moose is part of a training sequence as described in ¶ [0025]. As best understood, Moose does not disclose using any symbols that are not part of a training sequence in the derivation of a channel estimate. Since the training sequence is a preamble transmitted at the beginning of the packet, the methods taught by Moose are not sensitive to channel variations *during* a packet.

For at least these reasons, Moose does not anticipate claim 25. Claims 26 and 28 depend from claim 25 and derive patentability therefrom. Withdrawal of the rejection of claims 25, 26 and 28 under 35 U.S.C. §103(a) is respectfully requested.

Rejection of Claim 12 under 35 U.S.C. 103(a)

Claim 12 was rejected under 35 U.S.C. 103(a) as being obvious over Klimovitch in view of Moose. Claim 12 (which has been amended to correct a typographical error discovered therein) depends from claim 1, and the rejection of claim 12 is premised on the assertion that Klimovitch discloses all features incorporated by reference into claim 12 while Moose discloses the recited feature that the packets comply with IEEE 802.11a.

As discussed above, Klimovitch does not disclose or suggest all features recited in parent claim 1. As best understood, Moose provides no teaching or suggestion that would remedy this deficiency. For instance, no disclosure related to adaptive truncation of a channel estimate could be found in Moose. Therefore, the rejection is based on a flawed premise and cannot be maintained. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 12.

Rejection of Claim 27 under 35 U.S.C. 103(a)

Claim 27 was rejected under 35 U.S.C. 103(a) as being obvious over Moose in view of Klimovitch.

Claim 27 depends from claim 25, and the rejection of claim 27 is premised on the assertion that Moose discloses the features recited in parent claim 25 and Klimovitch discloses (or suggests) the remaining features of claim 27. As discussed above, however, Moose does not

disclose or suggest all features recited in claim B. As best understood, Klimovitch provides no teaching or suggestion that would remedy this deficiency. For example, as best understood, Klimovitch also teaches channel estimates derived only from training sequences and does not teach using received symbols that are not part of a training sequence to track channel variations during receipt of a packet. Therefore, the rejection is based on a flawed premise and cannot be maintained. Accordingly, Applicant respectfully requests withdrawal of the rejection of claim 27.

Objection to Claims 2-11 and 15-24

Claims 2-11 and 15-24 were objected to as being dependent on a rejected base claim, but were found to be allowable if rewritten in independent form. In view of the foregoing arguments with regard to claims 1 and 14, Applicant respectfully submits that claims 2-11 and 15-24 are in condition for allowance without being rewritten in independent form. Withdrawal of the objection is respectfully requested.

New Claims 29-74

Claims 29-74 have been added by this amendment. Applicant respectfully submits that support for these claims may be found throughout the specification. For example, for independent claim 37, see, e.g., ¶ [0065]; the result of transforming the truncated channel estimate from time domain to frequency domain is a smoothed channel estimate in the frequency domain. For independent claim 47, see, e.g., ¶ [0082] and ¶¶ [0043]-[0049]. For independent claims 58, 69, and 74, see, e.g., ¶¶ [0043]-[0049].

In order to expedite prosecution, Applicants respectfully submit the following grounds for patentability of new claims 29-74 over Moose and Klimovitch.

Each of claims 29-36 depends from one of claims 1, 14, or 25. Since the parent claims are allowable over the art of record as discussed above, these dependent claims are also allowable.

Independent claim 37 recites "adaptively smoothing the estimated channel response in the frequency domain." Claim 37 is patentable over Klimovitch and Moose at least

because, as discussed above, neither reference teaches or suggests *adaptively* smoothing a channel estimate. Claims 38-46 depend from claim 37 and derive patentability therefrom.

Independent claim 47 recites receiving both an IEEE 802.11a standard preamble and a MIMO preamble and adaptively smoothing the channel impulse response in the frequency domain. Neither Moose nor Klimovitch teaches this combination of features. Claims 48-57 depend from claim 47 and derive patentability therefrom.

Independent claim 58 recites transmitting "both an IEEE 802.11a standard preamble and a MIMO preamble, wherein the MIMO preamble is a preamble transmitted over two or more of the transmit antennas." No mention of MIMO could be found in Moose. Klimovitch, as best understood, shows transmitting preambles over two or more antennas simultaneously but does teach transmitting such preambles *in addition to* an IEEE 802.11a standard preamble. Claim 58 is patentable over Moose and Klimovitch for at least this reason also. Claims 59-68 depend from claim 58 and derive patentability therefrom.

Independent claim 69 recites transmitting training symbols over a legacy set of OFDM subcarriers and transmitting additional training symbols over an additional set of OFDM subcarriers. Moose teaches a legacy set of OFDM subcarriers (see, e.g., ¶ [0008]) but does not teach an additional set of subcarriers, and no mention of legacy or additional subcarriers could be found in Klimovitch.

Independent claim 74 recites a training sequence in which training symbols from different antennas differ in a cyclic shift, in combination with "adaptively smoothing the estimated channel impulse response in the frequency domain." This combination is not taught by Klimovitch or Moose.

### CONCLUSION

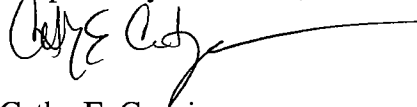
In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

Appl. No. 10/823,087  
Amdt. dated June 27, 2007  
Reply to Office Action of February 7, 2007

PATENT

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Cathy E. Cretsinger', with a long horizontal flourish extending to the right.

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